

REMARKS/ARGUMENTS

In view of the following remarks, the applicants respectfully submit that the pending claims are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. **If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicants respectfully request that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.**

The applicants will now address each of the issues raised in the outstanding Office Action.

Rejections under 35 U.S.C. § 103

Claims 1, 2 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2000026112 ("the Yoshida publication") in view of U.S. Patent No. 5,781,236 ("the Shinbori patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Independent claim 1 is patentable over the Yoshida publication in view of the Shinbori patent because these references, either taken alone or in combination, neither teach, nor make obvious, a photographing device provided with a dust removing mechanism comprising a drive circuit which supplies a periodic drive signal to the

piezoelectric element to vibrate the piezoelectric element, **thereby vibrating the optical element and a control circuit which changes a frequency of the periodic drive signal, to thereby cause the optical element to be vibrated at a plurality of frequencies that are close to at least two resonance frequencies different in order and successively applied.**

The Yoshida publication concerns a driving apparatus that moves a lens along an optical axis, in projecting and retracting directions, using an impact-type piezoelectric actuator. Specifically, a drive circuit continuously outputs a drive voltage having a rectangular waveform. The drive voltage is applied to an impact-type piezoelectric actuator causing it to expand or contract, thereby moving a lens along an optical axis. (See e.g., abstract, Figs. 1-3 and paragraphs [0046]-[0049] of the Yoshida publication.) The lens is not **vibrated** at a plurality of frequencies that are close to at least two **resonance frequencies** different in order and successively applied. On the other hand, the present invention relates to a dust removing mechanism, which generates oscillatory waves **on the surface of an optical element** located in a photographing optical path by vibrating a piezoelectric element in order to remove dust adhering to the optical element. Nowhere does the Yoshida publication teach **vibrating** an optical element and causing the optical element to be vibrated at a plurality of frequencies that are close to at least two **resonance frequencies** different in order and successively applied.

Thus, the Yoshida publication and the present application are completely different from each other in scope and configuration.

In exemplary embodiments consistent with the claimed invention, one of the particular characteristics is that the optical element is vibrated not at a single resonance frequency but at a plurality of resonance frequencies different in order (for example, first-order vibration and second-order vibration), so that the dust adhering to the optical element can efficiently be removed.

The Examiner contends that the Yoshida publication, in paragraphs [0050] and [0051] and FIG. 4 discloses the feature of the claimed invention to change "a frequency of the periodic drive signal, to thereby cause the optical element to be vibrated at a plurality of frequencies that are close to at least two resonance frequencies different in order and successively applied." (See Pages 2 and 3 of Paper No. 20090512). The applicants respectfully disagree.

The Yoshida publication merely discloses that the drive frequency f_d of the drive voltage output from the drive circuit 14 and applied to the piezoelectric element 26 is set to 0.7 times the resonance frequency f_r of the piezoelectric element 26, to which the support member 24 and the drive member 28 are fixed ($f_d = f_r \times 0.7$). The **duty ratio, not the frequency**, is changed to 0.7 or 0.3 depending on whether the engaging member 30 is moved in the projecting direction or the return direction (See, e.g., Figs. 2-4 and 6, and paragraphs [0050]-[0052] of the Yoshida publication.) Thus, the Yoshida publication does not disclose a change of the frequency of the periodic drive signal. The change in duty ratio does not teach the claimed change in frequency. Consequently, the Yoshida publication does not disclose the feature to **cause the optical element to be vibrated at a plurality**

of frequencies that are close to at least two resonance frequencies different in order and successively applied.

The Shinbori patent concerns an imaging apparatus and image sensing method employing an optical cut-off characteristic which is changed by a mechanism for rotating a simple optical low-pass filter for limiting the spatial frequency of light from a subject incident upon an image sensing element.

The purported teachings of the Shinbori patent do not compensate for the deficiencies of Yoshida publication with respect to claim 1 (discussed above), regardless of the purported teachings of the Shinbori patent, and regardless of the absence or presence of an obvious reason to combine these references.

Accordingly, independent claim 1 is patentable over the Yoshida publication in view of the Shinbori patent for at least the foregoing reasons. Since claims 2 and 13 depend from independent claim 1, these claims are similarly patentable over the Yoshida publication in view of the Shinbori patent.

Conclusion

In view of the foregoing remarks, the applicants respectfully submit that the pending claims are in condition for allowance. Accordingly, the applicants request that the Examiner pass this application to issue.

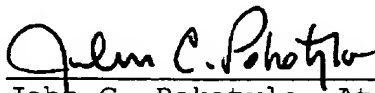
Any arguments made in this request for reconsideration pertain ***only*** to the specific aspects of the invention ***claimed***. Any claim amendments or cancellations, and any arguments, are made ***without prejudice to, or disclaimer of,*** the applicants' right to

seek patent protection of any unclaimed (e.g., narrower, broader, different) subject matter, such as by way of a continuation or divisional patent application for example.

Since the applicants' remarks, amendments, and/or filings with respect to the Examiner's objections and/or rejections are sufficient to overcome these objections and/or rejections, the applicants' silence as to assertions by the Examiner in the Office Action and/or to certain facts or conclusions that may be implied by objections and/or rejections in the Office Action (such as, for example, whether a reference constitutes prior art, whether references have been properly combined or modified, whether dependent claims are separately patentable, etc.) is not a concession by the applicants that such assertions and/or implications are accurate, and that all requirements for an objection and/or a rejection have been met. Thus, the applicants reserve the right to analyze and dispute any such assertions and implications in the future.

Respectfully submitted,

August 14, 2009



John C. Pokotylo, Attorney
Reg. No. 36,242
Tel.: (732) 936-1400

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this paper (and any accompanying paper(s)) is being facsimile transmitted to the United States Patent Office on the date shown below.

John C. Pokotylo

Type or print name of person signing certification

John C. Pokotylo
Signature

August 14, 2009
Date